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The availability and validity of the name *Forpus flavicollis* Bertagnolio & Racheli, 2010, for a parrotlet from Colombia

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The recent description of the Yellow-necked Parrotlet *Forpus flavicollis* Bertagnolio & Racheli, 2010, from a photograph taken in Colombia has generated extensive discussion among ornithologists about methods of description through illustrations and lack of deposited type specimens. This note aims to clarify these issues on the availability and validity for this scientific name.

In zoological nomenclature there is an important distinction in the meaning of the technical terms 'availability' and 'validity'. *Available* names are those which must be taken into account as a part of zoological nomenclature. Names that are *not available* effectively do not exist for the purposes of zoological nomenclature; they cannot enter into synonymy or homonymy, and cannot be used as the names of taxa. In contrast, a *valid name* is the name that is currently thought to be the correct name for a taxon, i.e. the oldest *available name* of a name-bearing type specimen that falls with an author's concept of the taxon. Consequently, a name may be available but not valid, e.g. a junior synonym. A valid name must be one selected from the available names in zoological nomenclature. A species should have only one valid name but may have many invalid names, e.g. as junior synonyms. This should not be confused with the technical use of the word valid when applied to publications, when it means the work complies with Art. 8 of the Code (ICZN 1999).

After examining the evidence, it appears that the name *F. flavicollis* is *available* in the technical sense for zoological nomenclature. It meets the requirements of the ICZN Code for establishing a new name. However the *validity* of the name remains a decision for taxonomists. They must decide whether the recognition of this species is justified or not, based on their assessment of taxonomic evidence and their taxonomic philosophy. If it is not felt that this name represents a *valid* species, then the name is a synonym or the taxon may

be considered *nomen dubium* (of unknown or doubtful application). Some ways to establish its validity are explained below in the section 'What happens next to *Forpus flavicollis*?'

More extensive discussions of the distinction between nomenclature and taxonomy, and on the use of illustrations to depict types can be found on the ICZN FAQs: <http://iczn.org/category/faqs/frequently-asked-questions>. The full text of the fourth edition of the ICZN Code (1999, here referred to as the Code) is available online at the Commission's website <http://www.nhm.ac.uk/hosted-sites/iczn/code/>. All the Articles mentioned here can be found in full on the website.

The availability and validity of the name *Forpus flavicollis*

The Code-compliance of descriptions based on photographs of specimens has been discussed at length, both pro and anti (e.g., Polaszek *et al.* 2005, on behalf of the ICZN, Dubois & Nemésio 2007, Donegan 2008, Nemésio 2009). Each instance is slightly different, and in this case it appears that the name *F. flavicollis* is available because:

A photograph or holograph in itself cannot be a type, *but the specimen (or specimens) depicted can be*. This is covered in the ICZN FAQs: <http://iczn.org/content/can-photograph-or-holograph-be-type-specimen>.

Art. 72.5.6 establishes quite clearly that *new species names can be based on illustrations of syntypes* (as was the case for *F. flavicollis*) as well as on holotypes (Art. 74.4 is particularly pertinent in this context, because lectotype designations from illustrations require that it is possible to establish syntypes through illustrations).

Bertagnolli & Racheli (2010) mention the application of Art. 73.1.4 on the designation of holotypes depicted in illustrations. This is irrelevant here because their types are syntypes.

A live specimen can be a type (or part of a name-bearing type in the case of syntype series). Art. 72.5, which defines what can be a type (or part of a type), makes no distinction between live or dead specimens, so a live specimen can be a type. There is no distinction elsewhere in the Code.

Syntypes are explicitly fixed for *F. flavicollis* in Bertagnolli & Racheli 2010, p. 129 (in agreement with Art. 16.4.1).

In my opinion, the syntypes are not extant specimens, so a statement of intent to deposit does not need to be made (Art. 16.4.2).

The Code does not appear to provide a satisfactory definition of the word specimen but the *Chambers Dictionary* (a common reference for UK English) states, among other definitions, that a specimen is an 'object serving for the purpose of study', and this utilitarian definition is in tune with the practical nature of the Code.

If the birds are released and their fate unknown, they can hardly be said to be specimens as they cannot still serve in any practical sense as objects of study, being lost, unlabelled and unrecognisable, and since they are not then specimens, neither can they be extant specimens.

The previous discussion has focused on whether the specimens are 'extant' (existing) or not, rather than whether the types are 'extant specimens' (existing in a way that they can serve as objects of study) and this is what has caused problems. Determining whether a type(s) which has been released live is extant (existing) or not extant at the time of publication in the absence of means to determine its status is often quite impractical, and in my opinion is not what is meant by 'extant specimen' in the Code, whereas determining if it is an 'extant specimen' is more straightforward.

The distinction of whether the specimen is alive or dead is also of no relevance here, since either can serve as an extant specimen, i.e. extant means existing and dead things can still exist, just as a wooden table exists, although it is no longer part of a living tree.

It is worth noting that the Code has two definitions of extant: (1) for taxa: having living representatives (extant as commonly used by palaeontologists) and (2) of specimens: still in existence. These two definitions are quite different and may be a cause for confusion; for the current question it is clearly definition (2) that is relevant.

What happens next to *Forpus flavicollis*?

While this means that the name *Forpus flavicollis* Bertagnolio & Racheli, 2010, is an available name, the obvious step to end the current controversy will be to search for specimens and determine if it really is a new or an already known species.

If it is a variety of a species that already has a pre-existing valid name, then the name *F. flavicollis* will become an invalid junior synonym. For instance, it is possible that the bird in question is a common species which has had its appearance altered by being dyed or painted, a practice used to make birds more desirable for sale.

If it is a new species or subspecies and it can be recognised, the name *flavicollis* will remain valid at the appropriate rank with its original authorship.

If it might be a new species or subspecies but an argument can be made that the type is inadequate to permit recognition, then an application can be made to the ICZN to have the types (currently depicted in an illustration) set aside and to designate a neotype based on a specimen which can be deposited in a museum. The validity of the name *F. flavicollis* will then depend on the identity of the neotype.

If no specimens can be found and the placement of the species is unclear, it can be considered invalid as a *nomen dubium* and set aside for taxonomic purposes until the meaning of the name *F. flavicollis* becomes clear.

Overview

While the description of *Forpus flavicollis* is Code compliant, the description does not appear to have followed good taxonomic practice. A group of specimens in a cage shown in a grainy photo provides very little replicable evidence for other scientists. There are many ways the description could have been improved without depositing type specimens in a museum. The authors should have examined and described the plumage of individuals with reference to a standard colour chart, selected one specimen to serve as a holotype to avoid ambiguity, provided clear figures, taken standard measurements, feather, blood or other tissue samples, or mentioned behavioural or auditory characters even if collecting sonograms was beyond their field capabilities. The authors should also have attempted to keep track of the birds and their subsequent fates. The ICZN cannot prescribe specific taxonomic characters that should be collected for responsible species description, but it should be evident that a minimum amount of information needs to be presented to support the possibility that taxonomy can be pursued as a science with examination and criticism of data, not merely assertion of opinion. Proposals for changes to the Articles for the fifth edition of the Code are always welcome; however, I believe that it is important to retain the option to describe new species using photographs as a practical measure, as has been well argued by Donegan (2008) and others.

Responsibility for good taxonomic practice rests with the authors, editors, their peer reviewers and scientific colleagues. Unfortunately, the ICZN cannot police this because this is outside its remit as explained in the Preface to the fourth edition of the Code. Furthermore, it would be a practical impossibility because there are tens of thousands of nomenclatural acts in zoology per annum, and policing names requires some taxonomic expertise; the ICZN lacks the staff to tackle such problems. The ICZN does recommend that

authors publish nomenclatural acts in mainstream taxonomic journals with robust peer review and that editors act as responsible gatekeepers for publication. This means editors should be informed on the core tenets of good taxonomic and nomenclatural practice. As well as resulting in better papers, this will give the author's research greater status and wider circulation, improving taxonomic practice and decreasing the need for nomenclatural intervention by the ICZN.

Disclaimer

This paper is an informal view provided for guidance by the ICZN Secretariat enquiry service and is not an official opinion of the Commission.

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